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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/898,285	07/02/2001	Ha Kyoan Lim	2060-3-04	2226

35884 7590 12/29/2004

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EXAMINER

SINGH, RAMNANDAN P

ART UNIT	PAPER NUMBER
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2644

DATE MAILED: 12/29/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/898,285

Applicant(s)

LIM, HA KYOON

Examiner

Ramnandan Singh

Art Unit

2644

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
 - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
 - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
 - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 July 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 02 July 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____

DETAILED ACTION

Drawings

1. Figure 1 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.121(d)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Arimilli [US 20030152105 A1] in view of Koenig et al [US 5,740,241].

Regarding claim 1, Arimilli teaches an interface device for communicating data using an analog exclusive line (or **single analog link 313**) [Para: 0003; 0042; 0048] with an FXO interface [Figs. 4B, 5A, 5B, 6C], the interface device comprising:

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a modem unit (300) for modulating and demodulating data [Figs. 3, 4A, 6B; Para: 0040-0042; 0170-0171; 0200; 0202];

a memory unit (i.e. a **local RAM memory 604**) in communication with the modem unit for storing an initial code and a control program for operation of the modem unit [Figs. 4A-6C; Para: 0060];

an FXS signal unit for recognizing a connection request signal from the FXO interface [Figs. 4B, 5A, 5B, 6C; Para: 0053-0057; 0066-0068]; and

a main processor unit (306) for providing data to the modem unit to be transmitted to the FXO interface, receiving the demodulated data from the modem unit, and controlling the operation of the modem unit and the FXS interface unit [Figs. 4A, 4B, 5A-5C, 6B-6C].

Arimilli does not teach expressly an impedance matching unit for matching impedance with the analog exclusive line. However, techniques of an impedance matching for transmission lines are well-known in the art.

Koenig et al teach a method for performing automatic impedance matching to adapt to various analog modem types and line lengths [Fig. 2; col. 18, lines 14-43; col. 12, lines 62-67; col. 13, lines 11-18; col. 13, lines 40-44].

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to provide the impedance matching unit of Koenig et al with Arimilli in

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order to attenuation/frequency distortion and return loss of transformer-coupled wire-line communications circuits [Koenig et al; col. 12, lines 62-67].

Further, Arimilli does not teach expressly a hybrid 2:4 wire conversion unit in communication with the modem unit for converting a four wire interface from the modem unit into a two wire interface for the analog exclusive line. It may, however, be noted that the use of a hybrid 2:4 wire conversion unit in telecommunications systems is well-known in the art.

Koenig et al teach a hybrid 2:4 wire conversion unit in communication with the modem unit for converting a four wire interface from the modem unit into a two wire interface for the analog exclusive line [Figs. 11, 12; col. 3, lines 19-38].

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to provide the hybrid 2:4 wire conversion unit of Koenig et al with Arimilli in order to adequately separate the transmit signal from the received signal in a full-duplex voice system [Koenig et al; col. 3, lines 11-18].

Claim 5 is essentially similar to claim 1 and rejected for the reasons stated above.

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Claim 16 is essentially similar to claim 1 except for checking a cut-off status; using a local ring generating unit having a controlled 20 Hz ring signal; and detecting an off-hook state. Koenig et al teach the method comprising the steps of:

checking a cut-off status [col. 9, lines 4-11; col. 26, line 35 to col. 27, line 4];

using a local ring generating unit having a controlled 20 Hz ring signal [col. 26, line 62 to col. 27, line 4]; and

detecting an off-hook state [col. 14, lines 11-19].

Regarding claim 2, Arimilli further teaches the interface device, wherein the FXS signal unit forms a closed circuit (i.e. **loop**) with the FXO interface attempting connection, and senses a connection request of the FXO interface by sensing a loop current flowing the closed circuit [Para: 0053; 0056; 0067].

Regarding claim 3, Arimilli further teaches the interface device comprising a local ring generating unit for notifying a connection request signal of the FXO interface to the modem unit by transmitting a ring alarm signal to the modem unit when the interface device senses the connection request signal [Para: 0053; 0067].

Regarding claim 4, Arimilli further teaches the interface device wherein the ring alarm signal is internally simulated by using a programmable chip (i.e. CODEC chip U12) in a CODEC [Para: 0072].

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Regarding claims 6-10, the limitations are shown above.

Regarding claim 11, Koenig et al further al teach the interface device, wherein the ring alarm signal of the local ring generating unit (**1033**) is a 20 Hz signal [Fig. 9B; col. 26, line 62 to col. 27, line 4].

Regarding claims 12-13, Koenig et al further al teach the interface device wherein the FXS signal unit senses an off-hook state and forming a call path to a designated device and the FXS signal unit senses a loop current to detect the off-hook state [col. 14, lines 12-19; col. 12, lines 28-50; col. 13, lines 1-10; col.17, lines 10-17; Fig.4; col. 21, lines 28-50].

Regarding claims 14-15 and 17-19, the limitations are shown above.

Conclusion

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

(i) Yoshida [US 5,289,468] teaches an adapter having modulation and demodulation means for connecting network including an analog exclusive line (I.e. WAN 400) [Figs. 1-2; col. 2, line 53 to col. 3, line 17]; and

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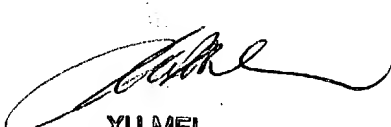
(ii) Davis [US 6,442,248 B1] teaches a communication device for simultaneous and independent communication of analog signals and digital data [Figs. 1-6B; col. 11, line 50 to col. 12, line 29].

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ramnandan Singh whose telephone number is (703)308-6270. The examiner can normally be reached on M-F(8:00-4:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Forester Isen can be reached on (703)-305-4386. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Ramnandan Singh
Examiner
Art Unit 2644



XU MEI
PRIMARY EXAMINER